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Lab Laurels
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ML researcher recognized by Affiliate Societies Council

by Pete Meltzer Jr., Materials and Manufacturing Directorate

WRIGHT-PATTERSON AIR FORCE BASE, Ohio — A senior research chemist at the Air Force Research Laboratory's Materials and Manufacturing Directorate (ML) was recognized by the Affiliate Societies Council (ASC) of Dayton, Ohio, Feb. 20, 2003. The recognition took place at the organization's 44th Annual Awards Banquet

Dr. Loon-Seng Tan of the Nonmetallic Materials Division was recognized for contributions supporting operational and future Air Force systems, and expertise in high temperature, synthetic polymer chemistry. His work with benzocyclobutene (BCB) and aromatic heterocyclic polymer systems have led to numerous successes in the directorate's Polymer Branch and have been critical to the transitioning of research breakthroughs to industrial development, Affiliate Societies Council said.

Each year, the 15,000-member council recognizes engineers and scientists from throughout the Greater Dayton area for outstanding technical accomplishments in their research field. Tan was one of 11 members honored this year.

Tan is the ML Directorate's research group leader for polymer synthesis and characterization. In addition to leading and conducting in-house research in structural, opto-electronic and multi-functional materials, he also initiates and monitors research and development contracts complementary to the directorate's in-house research programs.

Affiliate Societies Council Award recipient Dr. Loon-Seng Tan at work in the ML Directorate. (Air Force photo by Pete Meltzer Jr.)

Tan's achievements cover a diverse range of scientific and technological areas. He discovered a new addition cure chemistry that led to the development of BCB materials; conceived and demonstrated a chemical route to improve the toughness and use temperature of bismaleimide (BMI) resins using addition chemistry; and successfully developed a family of new rigid-rod high molecular weight pseudo-ladder polymers. Tan is also credited with developing highly active two-photon chromophores and a radically new approach to one-component molecular composite manufacturing using in-situ rigid-rod formation to prevent phase separation.

In addition, Tan has designed and synthesized acid-stable thermoset monomers that can be used as a matrix resin in molecular composite technology. He also conceived and experimentally proved a route to control the conductivity of plastic bonded explosives by incorporating triarylamino and diphenylamino functions into rigid-rod backbones.

Tan earned his undergraduate degree in chemistry from Harvey Mudd College in Claremont, Calif., in 1976 and received a doctorate degree in Inorganic Chemistry from Indiana University in 1981.

Tan is a member of several professional organizations, including the American Chemical Society, the Society for the

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Advancement of Materials Processing and Engineering, and the Materials Research Society. He was an assistant professor of Chemistry at Wright State University, and is a former associate research scientist for the University of Dayton Research Institute.

His selection recognizes his ideas, leadership and motivation toward high achievement in materials research required for current and future Air Force systems. @